

What is Claimed Is:

1. An oil treatment apparatus for continuous treatment of oil comprising, a source of oil to be treated coupled to a first conduit through which said oil is transported to a treatment station, said treatment station comprising a filter system capable of at least extracting particulate material from said oil and removing said particulate material from said filter system as it is removed from said oil, and a second conduit to return said treated oil to a predetermined location for reuse.
2. The oil treatment apparatus of claim 1, wherein said source of oil is a fryer apparatus having a reservoir in which a volume of cooking oil is disposed, a mechanism for heating said cooking oil in said receiver and a mechanism for continuously conveying food products through said reservoir for cooking of said food products.
3. The oil treatment apparatus of claim 1, wherein said removed particulate material includes particles having a size of fifteen microns or less.
4. The oil treatment apparatus of claim 1, wherein said particulate material is separated from said oil and deoiled prior to removal from said filter system to reduce the amount of oil retained in said removed particulate material.
5. The oil treatment apparatus of claim 1, wherein said filter system includes a centrifuge filter to which said oil is supplied at a predetermined flow rate.
6. The oil treatment apparatus of claim 5, wherein said predetermined flow rate is substantially twice the volume of said source of oil per hour.
7. The oil treatment apparatus of claim 5, wherein said centrifuge filter is a continuous decanter centrifuge which is supplied with and filters said oil in a continuous processing cycle.
8. The oil treatment apparatus of claim 1, wherein

1 said treatment station further comprises a prefILTERING station in which particulate material above a predetermined size is removed from said oil prior to said filter system.

5 9. The oil treatment apparatus of claim 1, wherein

5 said treatment station further comprises a prefILTERING station in which particulate material above a predetermined size is comminuted prior to said filter system.

10 10. The oil treatment apparatus of claim 1, wherein

10 said treatment station further comprises a prefILTERING station in which a treatment material is introduced into said oil prior to said filter system.

10 11. The oil treatment apparatus of claim 10, wherein

10 said treatment material is selected from the class consisting of diatomaceous earth material, fuller's earth material and activated carbon material.

12. The oil treatment apparatus of claim 10, wherein

15 said prefILTERING station includes a feed mechanism for selectively adding said treatment material to said oil.

13. The oil treatment apparatus of claim 10, wherein

15 said prefILTERING station further includes a reservoir for selectively holding a volume of said oil after introduction of said treatment material therein.

20 14. The oil treatment apparatus of claim 10, wherein

20 said treatment material reduces substances selected from the class consisting of free fatty acids, colored substances or flavored substances.

25 15. The oil treatment apparatus of claim 5, wherein

25 the operation of said centrifuge filter system is adjustable by varying parameters selected from the class consisting of flow rate, centrifuge rotation speed or residence time in said centrifuge.

16. The oil treatment apparatus of claim 1, wherein

16 said apparatus is used in conjunction with a food frying system used to fry food products selected from the class consisting of coated food products, breaded food products, battered food products, uncoated food products, snack food products or baked

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food products.

17. The oil treatment apparatus of claim 1, wherein
said filter system is capable of receiving oil which has been heated to a
high temperature.

5 18. The oil treatment apparatus of claim 1, further comprising
a mechanism to detect the presence of materials which will not pass through said
filter system, and acting to shut down operation of said treatment station if such materials
are detected.

10 19. The oil treatment apparatus of claim 1, wherein
said treatment station is operated in a discontinuous mode of operation,
whereby oil is selectively supplied to said station at discrete times.

20. A frying apparatus for frying food products on a continuous basis, comprising a
reservoir for holding a predetermined volume of cooking oil, a mechanism for heating of
said cooking oil in said reservoir to a predetermined temperature, a mechanism for
continuously conveying food products through said reservoir for cooking of said food
products, and a treatment station including a filter system capable of removing particulate
material from said volume of oil on a continuous basis during the cooking operation of a
size of fifteen microns or less.

21. A method of treating oil comprising the steps of:
a) transporting a source of oil to a treatment station, said treatment station
including at least a filter system,
b) supplying said oil at a predetermined flow rate to said filter system and
extracting particulate materials of at least a size of fifteen microns or less, and
c) transporting said oil from said filter system for reuse wherein said
particulate material is extracted from said oil.

25 22. The method of treating oil as set forth in claim 21, wherein said step of extracting
said particulate material includes separating said particulates from said oil and deoiling
said separated particulate material prior to removal from said filter system to reduce the
amount of oil retained in said removed particulate material.

23. The method of treating oil as set forth in claim 21, further comprising the steps of:
removing from said oil particulate material above a predetermined size prior to
supplying said oil to said filter system.

5 24. The method of treating oil as set forth in claim 21, further comprising the steps of:
comminuting particulate material above a predetermined size in said oil prior to
supplying said oil to said filter system.

10 25. The method of treating oil as set forth in claim 21, further comprising the steps of:
introducing a predetermined amount of a treatment material into said oil
prior to supplying said oil to said filter system.

26. The method of treating oil as set forth in claim 25, wherein
said treatment material introduced into said oil is selected from the class
consisting of diatomaceous earth material, fuller's earth material and activated carbon
material.

15 27. The method of treating oil as set forth in claim 21, further comprising the steps of:
detecting if any objects which will not pass through said filter system are within
said oil prior to supplying said oil to said filter system and shutting down operation of
said filter system if any such objects are detected.

20 28. The method of treating oil as set forth in claim 21, further comprising the steps of:
detecting if any clogging of the supply of cooking oil occurs and shutting down
operation of said filter system if a predetermined amount of clogging is detected.

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CROSS-REFERENCE TO RELATED APPLICATION
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